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## Foreign funding shocks and the lending channel: Do foreign banks adjust differently?

Felix Noth, Matias Ossandon Busch\*

Halle Institute for Economic Research - Member of the Leibniz Association and Otto-von-Guericke-University Magdeburg, Kleine Maerkerstrasse 8 06108 Halle(Saale), Germany

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## ABSTRACT

We document for a set of Latin American emerging countries that the different nature of foreign funding accessed by foreign and local banks affected their lending performance after September 2008. We show that lending growth was weaker for shock-affected foreign banks compared to shock-affected local banks. This evidence represents valuable policy information for regulators concerned with the stability and well-functioning of banking sectors.

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### 1. Introduction

A noteworthy aspect of the recent financial crisis was the role played by banks' foreign funding exposures in shaping the cross-border transmission of shocks. The liquidity crunch in global interbank markets chocked off banks' ability to access foreign funding, increasing financial fragility and transmitting the crisis to local credit markets (Cetorelli and Goldberg, 2011; Ongena et al., 2015). However, little is known about how the spreading of the crisis via foreign funding shocks varied with banks' foreign ownership. The nature of foreign funding relationships might differ between local and foreign-owned banks due to foreign banks' access to intrabank liquidity allocation within multinational banks. This could lead to different counterparty information asymmetries, which in turn can affect the characteristics of shocks in the context of global financial distress. We employ a novel bank-level data to investigate whether the effect of foreign funding shocks on local lending in the aftermath of the crisis differed along the foreign-ownership dimension in a group of emerging countries.

Previous literature has separately addressed the role of foreign funding shocks and foreign ownership in transmitting financial shocks. Aiyar (2012) documents that foreign funding shocks translated into lending restrictions during the crisis in the U.K. More generally, Peek and Rosengren (1997) and Schnabl (2012) show that in different crisis episodes foreign

\* Corresponding author.

E-mail address: [matias.ossandonbusch@iwh-halle.de](mailto:matias.ossandonbusch@iwh-halle.de) (M. Ossandon Busch).

banks have served as transmission vectors between banking systems. The relevance of intrabank capital markets for financial contagion has been stressed by De Haas and van Lelyveld (2010), who link the performance of parent banks with the one of their network of affiliates abroad. Cetorelli and Goldberg (2011) show that during the global financial crisis, intrabank capital markets were behind the transmission of shocks to countries hosting foreign banks.

We contribute to the literature by exploring the effect of foreign funding shocks on lending along the foreign-ownership dimension. Moreover, the paper presents to the best of our knowledge the first documentation of the transmission of bank-specific foreign funding shocks in emerging countries triggered by the crisis of 2008–09.

## 2. Data and descriptive evidence

To evaluate whether the pass-through of foreign funding shocks to local lending differed by banks' foreign ownership we use bank-level data reported on a monthly basis between January 2006 and January 2012 including all banks in four Latin American countries for which the crisis aroused exogenously: Brazil, Chile, Colombia and Peru. These countries share a similar regulatory framework, including partial ring-fencing policies for foreign banks. We exploit the fact that compared to other regions, foreign banks in Latin America behave much more like local banks, issuing credit in domestic currency and funding themselves primarily with local deposits (Kamil and Rai, 2010). The data comes from banks' call reports reported by local regulatory authorities. We identify the foreign owners using information from Claessens and van Horen (2015) and banks' websites. To ensure consistency we convert all data to real December-2013 US\$ millions.

We restrict the sample to banks without missing values in foreign liabilities during the sample period. To compute bank-specific foreign funding shocks we define a crisis period from January 2008 to March 2009, the period where credit market volatility in the sample jumps compared to the pre-crisis period. To account for the size of shocks relative to banks' balance sheets we first compute foreign funding growth as the 12-month change in foreign liabilities divided by 12-month lagged total assets. Shock-affected banks are defined as those reporting a crisis-average foreign funding growth below the respective country's sample medians. The sample includes 71 banks, out of which 34 were affected by a shock and 29 were foreign-owned. On average these banks represent 54% of total bank assets in the original sample<sup>1</sup>.

Fig. 1 provides a graphical inspection and displays monthly averages of changes in (log) outstanding credit with respect to August 2008, the last pre-Lehman observation. Panel A reveals no clear changes in the difference in lending growth between shock-affected and unaffected banks when comparing the pre- and post-crisis periods. Panel B displays lending growth by banks' foreign and local ownership for the subsample of non-shocked banks, without suggesting any clear difference in the lending pattern of both groups. Finally panel C replicates the latter exercise for the reduced sample of shock-affected banks. It evidences a divergence in lending growth between local and foreign banks in the aftermath of the crisis, in line with our hypothesis.

## 3. Methodology

We test whether shock-affected foreign banks exhibited a different lending performance than shock-affected local banks in the aftermath of the crisis compared to the pre-crisis period. The pre-crisis period covers the months from January 2006 to December 2007, whereas the post-crisis period is defined from April 2009 to January 2012. This approach allows us to timely differentiate between the period when the shock occurs and the one where outcomes are observed. Lending growth is defined as the 3-month change in outstanding credit divided by 3-month-lagged total assets,  $100 \times (\Delta Credit_{i,t} / Assets_{i,t-3})$ .

Panel A in Table 1 shows that the nature of foreign funding accessed by local and foreign banks differed in the pre-crisis period. Foreign-owned banks report on average a larger foreign funding ratio and a larger volatility of foreign funding growth than local banks. Moreover foreign-owned banks experienced shocks that were larger in size and longer in terms of duration during the crisis.

Panels B and C test for the statistical significance of the observations made in Fig. 1. We compute a non-parametrical difference-in-difference estimator of the effect of foreign ownership on lending growth for the subsamples of non-shocked banks (panel B) and shock-affected banks (panel C). Panel B, which resembles the observations from Fig. 1.B. above, shows no significant differences in lending growth by banks' ownership in the post-crisis period compared to the pre-crisis period.

Conversely, panel C shows that within the subsample of shock-affected banks there was a differential effect of foreign ownership on lending in the post-crisis period compared to the pre-crisis period: foreign banks reduced their lending growth by 0.99% points more than local banks in the post-crisis period. These findings should alleviate concerns about a bias stemming from different ex-ante characteristics between shock-affected and non-affected banks that might explain their adjustments after September 2008.

To formally verify the preliminary findings from Fig. 1 and Table 1 we estimate the model described in Eq. (1), in which lending growth depends on a post-crisis indicator, the foreign funding shock identifier and a foreign-ownership dummy:

$$\frac{\Delta Credit_{i,t}}{Assets_{i,t-3}} = \beta_1 [Post_t \times Shock_i \times Foreign_i] + \beta_2 [Post_t \times Shock_i] + \beta_3 [Post_t \times Foreign_i] + \beta' Bank_{i,t} + \gamma_i + \tau_t + \varepsilon_{i,t} \quad (1)$$

<sup>1</sup> The final sample represents 53.5% of total assets in Brazil, 89.7% in Chile, 73.3% in Colombia and 58.5% in Peru.

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